Pump models

TR9	T100
TR20	T200
T50	T400

PE & PTFE series

English

CE Instruction manual

Air operated diaphragm pumps

tapflo®

Pumps in polyethylene or PTFE

- Instructions for installation, start up, operation, maintenance and repair
- Spare parts

STOP **Read this instruction manual carefully, before you install and operate the pump**

C:\arbetsfiler\instruktioner\tapflo\pumpar\pe & ptfe eng\instruction pe ptfe series english.pmd

Edition 3/2004

CONTENTS

	CE CERTIFICATE	**3**
0	**GENERAL**	**4**
0.1	Introduction	4
0.2	The waring symbols	4
1	**INSTALLATION**	**5**
1.1	Receiving inspection	5
1.2	Storage	5
1.3	Foundation	5
1.4	Suction and discharge pipings	5
1.4.1	Turnable connections	5
1.4.2	Connection of suction pipe	5
1.4.3	Connection of discharge pipe	5
1.5	Air connection	5
1.5.1	Air treatment system	6
1.6	Example of installation	6
1.7	Recommended installations	7
1.7.1	Flooded	7
1.7.2	Selfpriming	7
1.7.3	Submerged	7
2	**OPERATION**	**8**
2.1	Health and safety	8
2.1.1	Protection	8
2.1.2	Environments in danger of explosion	8
2.1.3	Air pressure	8
2.1.4	Noise level	8
2.1.5	Temperature hazards	8
2.2	Before starting the pump	8
2.3	Starting and operating	9
2.3.1	Dry running	9
2.3.2	Optimizing the pump lifetime	9
2.4	Pump stopping	9
3	**MAINTENANCE**	**10**
3.1	When the pump is new or reassembled	10
3.1.1	Performance test	10
3.2	Routine inspection	10
3.3	Complete inspection	10
3.4	Location of faults	10
3.5	Dismantling the pump	11
3.5.1	Before the dismantling procedure	11
3.5.2	Mainparts	11
3.5.3	Housing	11
3.5.4	Center block	11
3.6	Assembly of the pump	12
3.6.1	Center block	12
3.6.2	Suction and discharge connections	12
3.6.3	Assembling of the main units	12
3.6.4	Test run	12
4	**SPARE PARTS**	**13**
4.1	Spare parts TR9 and TR20	13
4.2	Spare parts T50 and T100	14
4.3	Spare parts T200 and T400	15
4.4	Stocking recommendation	16
4.5	How to order parts	16
4.6	Pump code	16
5	**DATA**	**17**
5.1	Capacity curves	17
5.2	Capacity changes	17
5.3	Dimensions	18
5.4	Technical data	19
5.5	Tightening torques	19
6	**WARRANTY & REPAIR**	**20**
6.1	Returning parts	20
6.2	Warranty	20
6.3	Warranty form	21

Declaration of conformity

Machinery directive 98/37/EC, Annex 2A

Tapflo AB declares that:

Product name: **Air operated diaphragm pumps**
Models: **T…**

Is in conformity with the essential health and safety requirements and technical construction file requirements of the EC Machinery directive 98/37/EC with amendments.

Manufacturer: **Tapflo AB**

Address: **Filaregatan 4**
S-442 34 Kungälv
Sweden

Tapflo AB, september 1st 1999

Börje Johansson
Managing director

0. GENERAL

0.1 Introduction

The Tapflo Air Operated Diaphragm Pump range is a complete serie of pumps for industrial applications. The pumps are designed to be safe simple and easy to use and maintain. The construction is sealless and without rotating parts. The pumps are suitable for almost all different chemicals used by the industry today..

With proper attention to maintenace, Tapflo Pumps will give efficient and trouble free operation. This instruction manual will familiarise operators with detailed information about installing, operating and maintaining the pump.

0.2 The warning symbols

The following warning symbols are present in this instruction manual. This is what they say.

This symbol stands next to all safety instructions in this instruction manual where danger to life and limb may occur. Observe these instructions and proceed with utmost caution in these situations. Inform also other users of all safety instructions. In addition to the instructions in this instruction manual, the general safety and accident prevention regulations must be observed.

This signal stands at points in this instruction manual of particular importance for compliance with regulations and directives, for correct work flow and for the prevention of damage to and destruction of the complete pump or its subassemblies.

1. INSTALLATION

1.1 Receiving inspection

Although precaution is taken by us when packing and shipping, we urge you to carefully check the shipment on receipt. Make sure that all parts and accesories listed on the packing list are accounted for. Immediately report any damage or shortage to the transport company and to us.

1.2 Storage

If the equipment is to be stored prior to installation, place it in a clean location. Do not remove the protective covers from the suction, discharge and air connections which have been fastened to keep pump internals free of debris. Clean the pump thoroughly before installation.

1.3 Foundation

The pump is furnished with vibration absorbing rubber feet. The pump will operate properly without being fixed to a foundation. If fixation is needed for an installation, make sure the foundation is able to absorb vibrations. It is essential for the operation of the pump to mount the pump with the feet in a downward direction (see sketch).

1.4 Suction and discharge pipings

Suction and discharge piping should be fully supported and anchored near to but independent of the pump. The piping to the pump should be a hose, to prevent undue stress and strain on the pump connections and the pipings.

1.4.1 Turnable connections

The suction and discharge connections are turnable 180°. This simplifies the assembling and installation considerably. If you wish to turn the connections, screw a threaded nipple into the connection and turn. On the larger models T200 and T400 it will simplify if the housing nuts are slightly released while turning the connections.

1.4.2 Connection of suction pipe

Remember that the suction pipe/connection is the most critical point, especially if the pump is priming. Just a small leakage will dramatically reduce the suction capability of the pump. When connecting the suction pipe, following is recommended.

1) For satisfactory operation, use reinforced hose or corresponding (the suction power may otherwise shrink the hose). The internal diameter of the hose should be the same as on the suction connection (at the bottom of the pump) to have best suction capability.

2) Make sure that the connection hose - pump is completely tight, otherwise the suction capability will be reduced.

3) Always use as short suction pipe as possible. Avoid air pockets which can arise with long pipings.

1.4.3 Connection of discharge pipe

For this connection it is only recommended a simple and positive flow connection. Use a hose or flexible piping (minimum one meter) between the discharge connection and any rigid fixed piping. Coil the hose at least one turn. All components (hose, pipe, valves etc) on the discharge piping must be designed for minimum PN 10.

1.5 Air connection

Screw the air hose into the air intake on the center block of the pump with for example a bayonet coupling. For best efficiency, use the same hose diameter as the internal diameter of the connection on the air intake.

1.5.1 Air treatment system

The air valve is constructed for oilfree air. Lubrication of the air is ***not allowed.*** However, if the air is ***very dry*** (laboratory air), the air may be lubricated with water. Maximum air pressure is 8 bar. As prevention purpose, a filtration of the air by means of a 5 micron filter or finer is recommended. Dirt in the air can under unfortunate circumstances be the cause of breakdown.

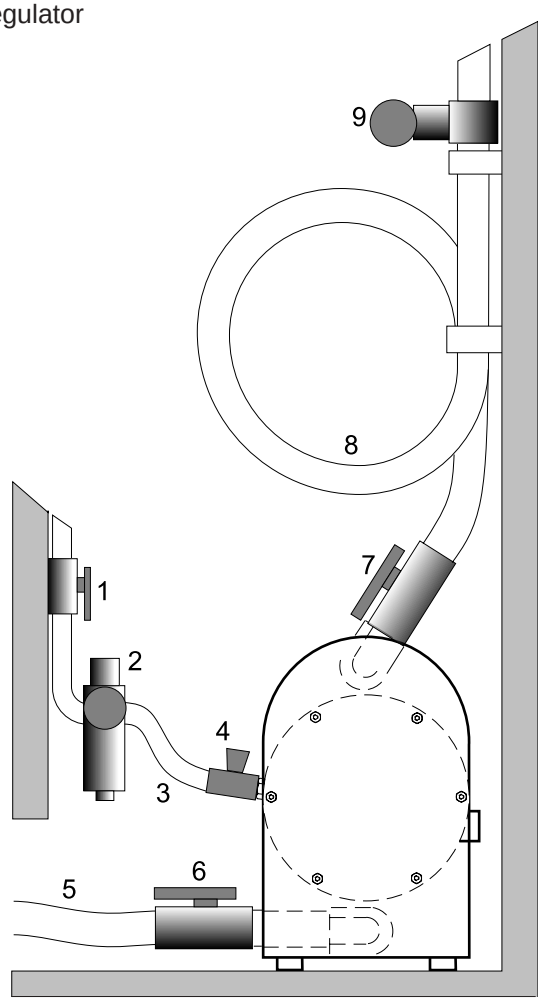
To facilitate the operation of the pump we recommend an air treatment system connected to the air supply. These components should be included:

1) Regulator to adjust the air pressure
2) Manometer to read the actual pressure
3) Needle valve to adjust the air flow
4) Filter

These components are included in Tapflos **Air treatment system** which can be ordered from us.

1.6 Example of installation

1) Gate valve compressed air
2) Filter and pressure regulator
3) Flexible hose
4) Needle valve
5) Flexible piping
6) Gate valve suction
7) Gate valve discharge
8) Coiled flexible piping
9) Flow gauge

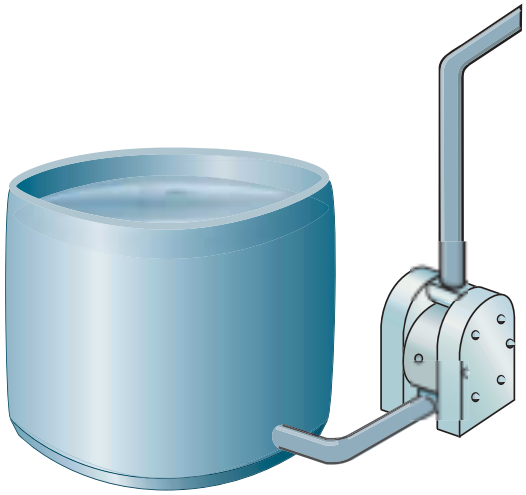


1.7 Recommended installations

The Tapflo pump is flexible in the way you are able to install it. The in- and outlet ports are infinitely turnable more than 180° to fit various piping systems.

1.7.1 Flooded

The piping system is designed with a positive suction head. This is the best way of installtion where it is necessary to completely evacuate all liquid from the container, or where viscous (thick) products are transfered.

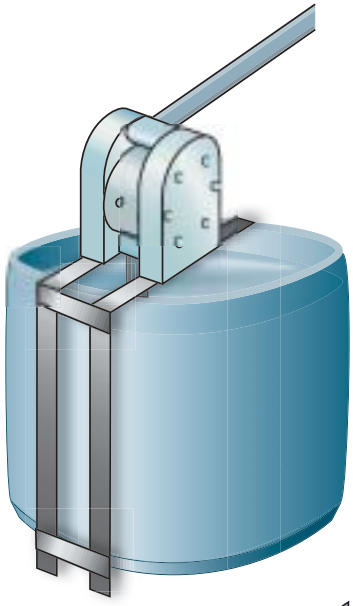


Important

Do not exceed 0,7 bar suction pressure. Higher pressure may cause premature diaphragm failure and irregular pump operation.

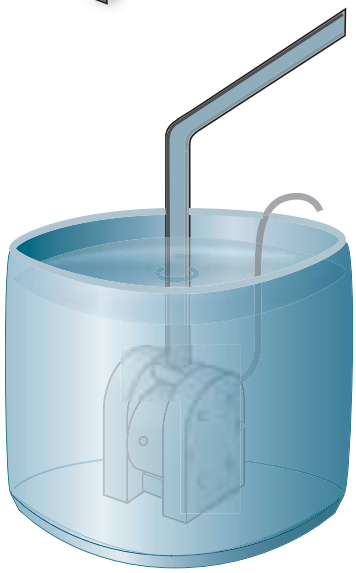
1.7.2 Selfpriming

The Tapflo pump is designed to pull a high vacuum. It is able to evacuate an empty suction pipe without any damage to the pump. The suction lift is up to 5 meter (16.4 ') from an empty suction pipe and up to 8 meter (26.2') from a wetted pipe. The suction capability depends on the pump size (see chapter 5.4)



1.7.3 Submerged

All Tapflo pumps may be submerged into the liquid. It is important to make sure that all components which are in contact with the liquid are chemically compatible. The air exhaust must be led to the athmosphere by means of a hose.



Air exhaust port dimension

Pump size	Air exhaust port
TR9, TR20 and T50	1/2" BSP
T100, T200 and T400	1" BSP

2. OPERATION

2.1 Health and safety

The pump must be installed according to local and national safety rules.

The pumps are constructed for particular applications. Do not use the pump on applications different from that for which it was sold without consulting us to ascertain its suitability.

2.1.1 Protection

In the interest of health and safety it is essential to wear protective clothing and safety goggles when operating, and/or working in the vicinity of Tapflo pumps.

2.1.2 Environments in danger of explosion

The standard PE or PTFE series pumps are not allowed to operate in environments in danger of explosion. Static electricity may occur in the pump under operation, which may cause explosion and injury. Special conductive pumps TX are available for such applications. If you have purchased a TX pump, also carefully read the ATEX instruction appendix. Consult us for further information. Follow the explosion safety rules applicable at the location for the pump.

2.1.3 Air pressure

The maximum air pressure for Tapflo pumps is 8 bar. Higher air pressure than 8 bar can damage the pump and may cause injury to personel in vicinity of the pump. If you intend to apply a higher air pressure than 8 bar, please consult us.

2.1.4 Noise level

At tests, the noise level from a Tapflo pump has not exceeded 80 dB(A). Under some circumstances, for example if the pump is operating under high air pressure at low discharge head, the noise can be inconvenient or hazardous for personel staying for long periods in vicinity of the pump. This hazard can be prevented by:

- using suitable ear protection
- lower the air pressure and/or raise the discharge head
- lead the outcomming air from the place by connecting a hose from the muffler connection of the pump. You will find the air exhaust dimension in chapter 1.7.3.
- use elastomer valve balls (EPDM, NBR or polyurethane) instead of PTFE, ceramic or stainless steel, provided that the elastomer is compatible with the pumped liquid.

2.1.5 Temperature hazards

Raised temperature can cause damage on the pump and/or pipings and may also be hazardous for personel in the vicinity of the pump/pipings. Avoid quick temperature changes and do not exceed the maximum temperature specified when the pump was ordered. See also general max temperatures based on water in chapter 5 "Data".

2.2 Before starting the pump

- Make sure the pump is installed accordning to the installation instruction (section 1).
- Filling of the pump with liquid before start is not necessary.
- When installation is new or reinstalled, a test run of the pump with water should be conducted to make sure the pump operates normally and does not leak.

2. OPERATION

2.3 Starting and operating

- Open the discharge valve.

- ***Note! Considering the suction capacity when air is still in the suction pipe, it is recommended to start with low air pressure/flow in the beginning. This is not necessary if the pump is filled with liquid before start.***

- When the pump has been filled with liquid, the air pressure/flow may be raised to increase the suction capacity of the pump.

- The performance of the pump can be adjusted through the air supply by using a needle valve and a pressure regulator. The performance can also be adjusted by normal flow control on the discharge side of the system.

2.3.1 Dry running

The pump may run dry without any problem.

2.3.2 Optimizing the pump lifetime

Running at full frequenzy (maximum air pressure/flow) continiously will cause premature wear of the components. As a general rule, we recommend to run at half of the maximum capacity of the pump. For instance, a T100 pump should run continious maximum at 50 l/min.

2.4 Pump stopping

The pump can be stopped in two ways:

1) Close the discharge valve. The pressure from the system will stop the pump automatically. This will not do any damage to the pump. The pump restarts easy when the valve is opened again.

2) Stop the air supply.

3. MAINTENANCE

3.1 When the pump is new or reassembled

If the pump is new or reassembled after maintenance it is important to retighten the pump housing nuts (pos 37) after a few days of operation. Make sure to use the right torque, see chapter 5.5.

3.1.1 Performance test

When installation is new, a test run of the pump should be conducted. Gauge the capacity at specific air pressure/flow. This information is for use in checking performance as wear takes place. You will be able to set schedules for maintenance of the pump and to select spare parts to be kept on stock.

3.2 Routine inspection

Frequent observation of the pump operation is recommended to detect problems. A change in sound of the running pump can be an indication of weared parts (see below "location of faults"). Leaking liquid from the pump and changes of performance may also be detected. Routine inspections should be conducted frequently.

3.3 Complete inspection

The intervals for a complete inspection depend upon the operation conditions for the pump. The characteristics of the liquid, temperature, materials used in the pump and running time decide how often a complete inspection is necessary.

If a problem has occured, or if the pump is in need of a complete inspection, see later this chapter "location of faults" and "dismantling of the pump". You are of course warmly welcome to consult us for further help.

Worn parts should be carried in stock, see our recommendation in chapter 4.4.

3.4 Location of faults

Problem	Possible fault
The pump does not run	The air pressure is to low The air connection is blocked Muffler is blocked Air valve is defect Dirt in the pump chamber Diaphragm breakdown
The suction is bad	Suction connection is not tight Suction connection is blocked Muffler is blocked Valve balls are blocked Valve balls are damaged
The pump runs irregularly	Valve balls are blocked Sealings are defect in air valve or center block Diaphragm breakdown
Bad flow/pressure	Pressurefall in incomming air Suction or air connection blocked Muffler is blocked Air valve is defect Valve balls worn out/broken Air in liquid Diaphragm breakdown
Liquid leaks from the pump	Screws on the housing not properly fastened
Liquid comes out of the muffler	Diaphragm breakdown

3.5 Dismantling the pump

The numbers put in brackets, refer to the part numbers in the spare part drawings and spare part lists in chapter 4.

3.5.1 Before the dismantling procedure

Be sure to drain all liquid from the pump. Cleanse or neutralize the pump thoroughly. Disconnect the air connection and then the suction and discharge connections.

3.5.2 Mainparts

1) Unscrew the nuts (37) on one side of the housing (11).

2) Place the pump on the side that still has the nuts (the pump lays on the nuts) on a stable ground, for example a table.

3) Carefully remove the "loose housing" (11).

4) Carefully lift up the suction and discharge connections (13). You have the center block (12) and one of the housings with pin screws (14) left.

5) Upend the pump and carefully pull out the pin screws (14). Be careful with the diaphragms (15) that easily can be damaged by the threads of the pin screws.

The mainparts of the pump are now dismantled. The following is for dismantling the housing and center block in detail.

3.5.3 Housing

1) Put the house wall with the flat side down on a plane surface that will not damage the housing, for example a table covered with cardboard.

2) Remove the spacer sleeve (19), by turning it 180°. To do that, put a piece of plastic towards one side of the spacer sleeve - knock on it so that the spacer sleeve is turning. Then put one of the pin screws in the hole on the spacer sleeve and turn it as far as it is possible, until it lays upside down (180°) compared to the starting position. Pull the spacer sleeve carefully against the lower valve seat (21) until it is free and can be put out. Please note that force never shall be used for dismantling.

3) Stick something not pointed (for example a pin screw with one of the nuts on) into the hole for the discharge connection and press gently out the upper valve seat (20).

4) Place one of the pin screws on the inside (behind) the valve ball stopper on the lower valve seat (21). Carefully pull out the valve seat in the housing.

5) In order to remove the valve ball (23) from the valve seat, use a pin screw and press carefully out the valve ball stopper (22) and the valve ball will be free.

3.5.3.1 For TR9 and TR20

Dismantling of the spacer sleeve:
Screw a pin screw into the spacer sleeve, pull it up and then out from the housing.

3.5.4 Center block

1) Press the diaphragms (15) to their neutral position (both have the same distance to the center block).

2) Hold one of the diaphragms (15) and unscrew the other. Then pull out the remaining diaphragm with the diaphragm shaft (16).

3) Dismantle the circlips (27) which keep the air valve (61) on it's place, press out the air valve with for instance a wood shaft of a hammer or by means of a pressing device. Always be careful, so that you do not damage the sealing edges towards the diaphragm or the air valve.

4) If the shaft sealings (36) seem to be worn out (by internal leakage of air), carefully remove them with a pointed tool. During this operation, the sealing (36) and backup o-ring (47) usually get destroyed, so make sure to have replacement spares available.

The pump is now completely dismantled. Check all components for wear or damage and replace if necessary.

3.6 Assembly of the pump

3.6.1 Center block

1) Mount the circlip (27) on one side. Put some soft soap solution on the air valve o-rings (30) and then carefully push the air valve (61) into the housing. On the bigger pumps, it is necessary to use a pressing device for this operation. Make sure that the o-rings (30) remain in the right position. Put the circlip (27) on the other side.

2) Put the diaphragm (15) with shaft (16) into the center block. Screw the next diaphragm (15) onto the shaft (16) and fix the holes. Sometimes you have to turn the diaphragms a little back to get the holes fixed.

3.6.2 Suction/discharge connections

Always make sure that the o-rings (18) are placed on the in/outlet (13) before all assembling of pump.

Special for pump with PTFE diaphragms:
U-rings (18) are placed on the pump housing. Put u-ring with open side up so you carefully can put the o-ring in the groove. Make sure you do not fold the inner edge of the u-ring.

3.6.3 Assembling of the main units

1) Turn the housing (11) with the flat side up.

2) Make sure all pin screws (14) have one nut (37) and one washer (38) each. Nut should only be put on one or two threads.

3) Put all the pin screws through the housing and then turn the housing so it rests on the nuts.

4) Let the center block (12) gently be put to the housing with screws through center block. Be careful that threads on screws do not damage the diaphragms when assembling.

5) Place suction and discharge connections (13) in their positions in the housing. Be careful not to damage the u-ring (PTFE model) and o-rings (18).

6) Put the second housing (11) onto the pin screws (14). Make sure that suction/discharge connections are in right direction and again be careful with the u-ring/o-rings.

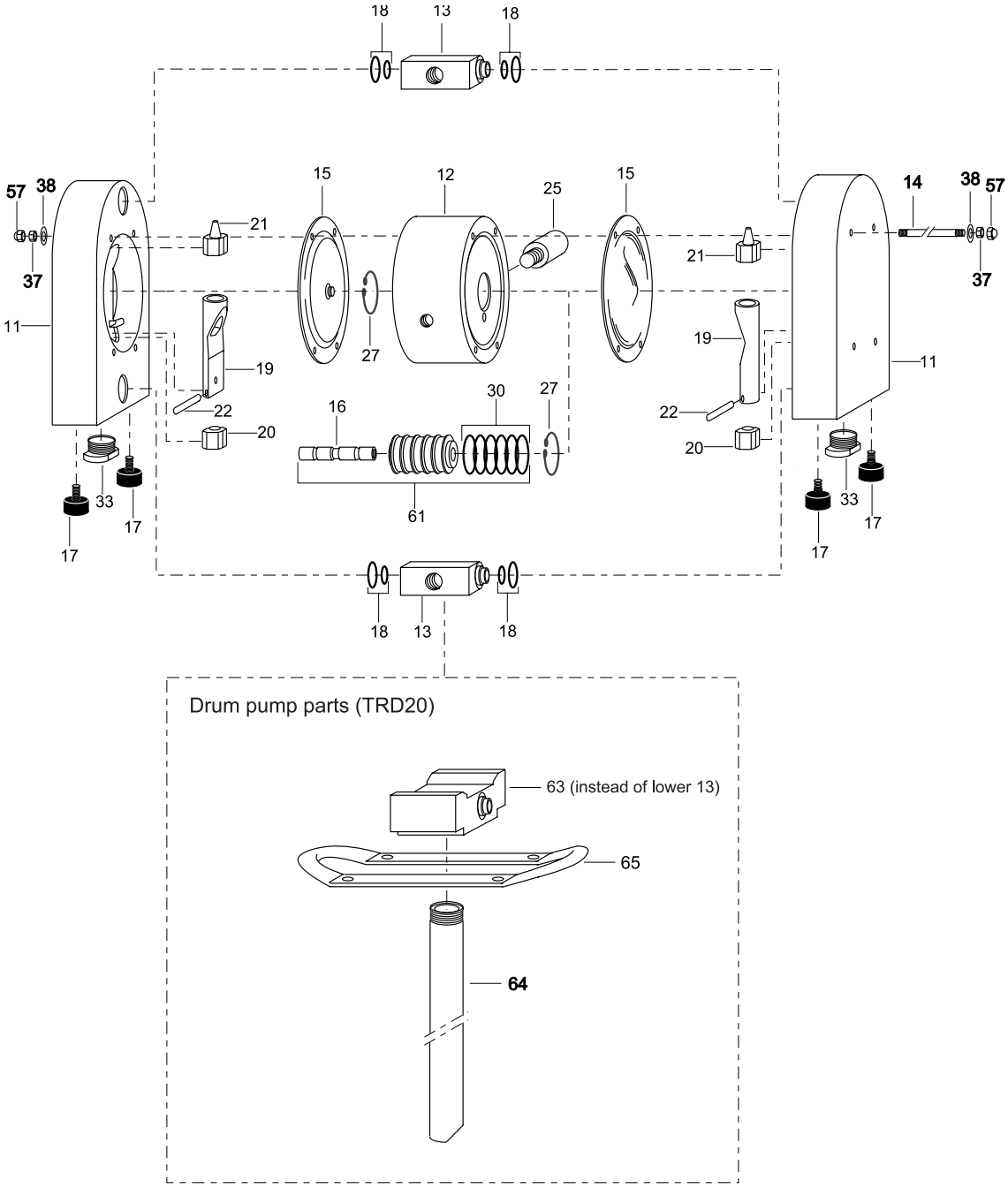
7) Fasten the nuts (37) alternatingly by hand, with or without washers depending on how much of the thread comes out. When all nuts are fastened, turn them gently with a tool so that the pump gets closed. If some of the nuts were fastened without washer, unscrew thoose and put washers underneath. See recommended tightening torques in chapter 5. After a few weeks operation a follow up draft of the nuts is recommended.

3.6.4 Test run

We recommend you to conduct a test run of the pump before installing it to the system so no liquid gets wasted if the pump leaks or perhaps does not start according to wrong assembling of the pump.

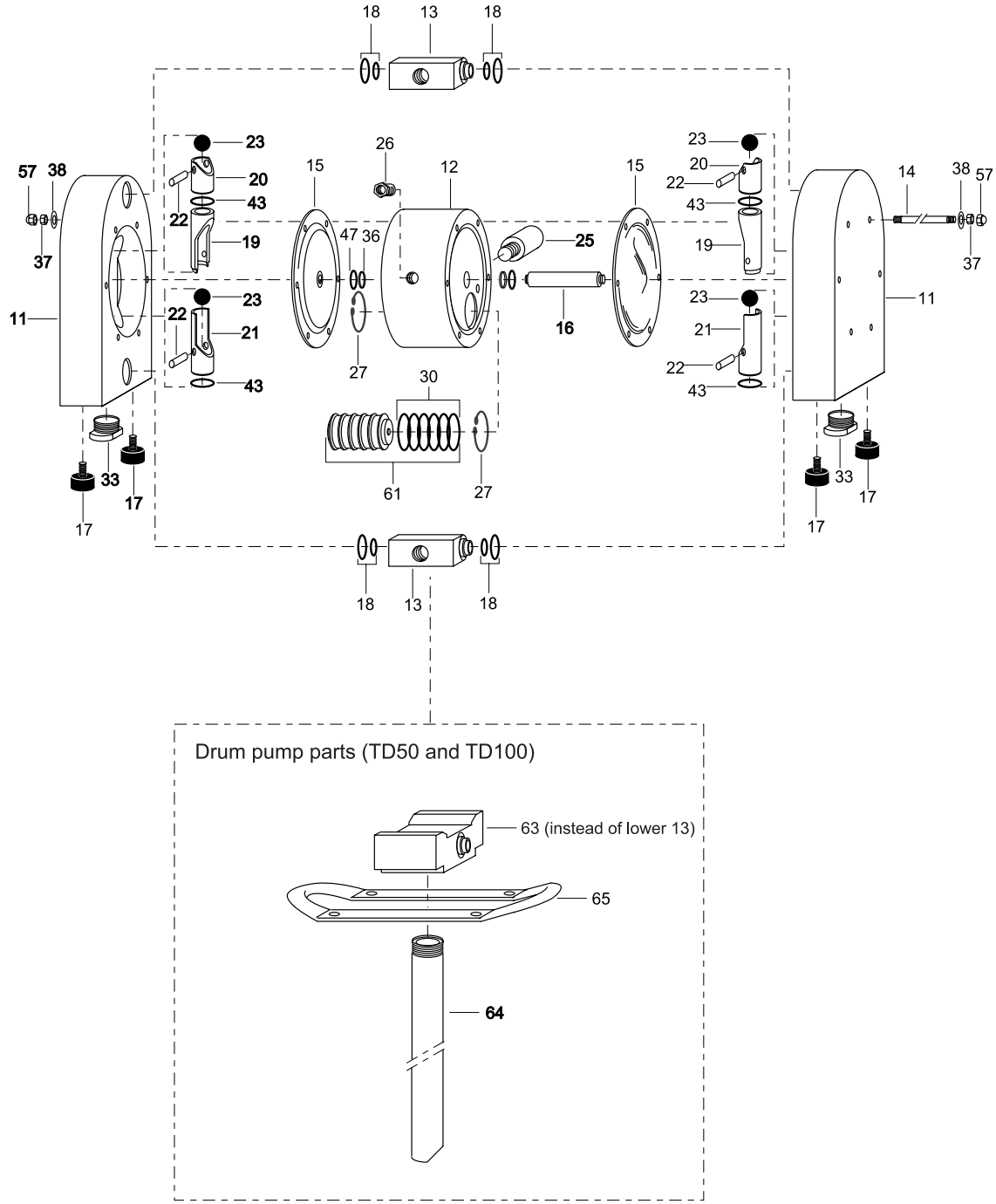
4. SPARE PARTS

4.1 Spare parts TR9 and TR20



Pos	Description	Qty/pump	Pos	Description	Qty/pump
11	Housing	2	25	Muffler	1
12	Center block	1	27	Circlip	2
13	In/Outlet	2	30	O-ring	6
14	Pin screw	4	33	Plug	2
15	Diaphragm	2	37	Nut	8
17	Rubber foot	4	38	Washer	8
18	O-ring set (in/outlet)	4	57	Nut cover	8
19	Spacer sleeve	2	61	Air valve complete	1
20	Lower rod	2	63	Drum inlet	1
21	Upper rod	2	64	Pump tube	1
22	Pin	2	65	Handle	1

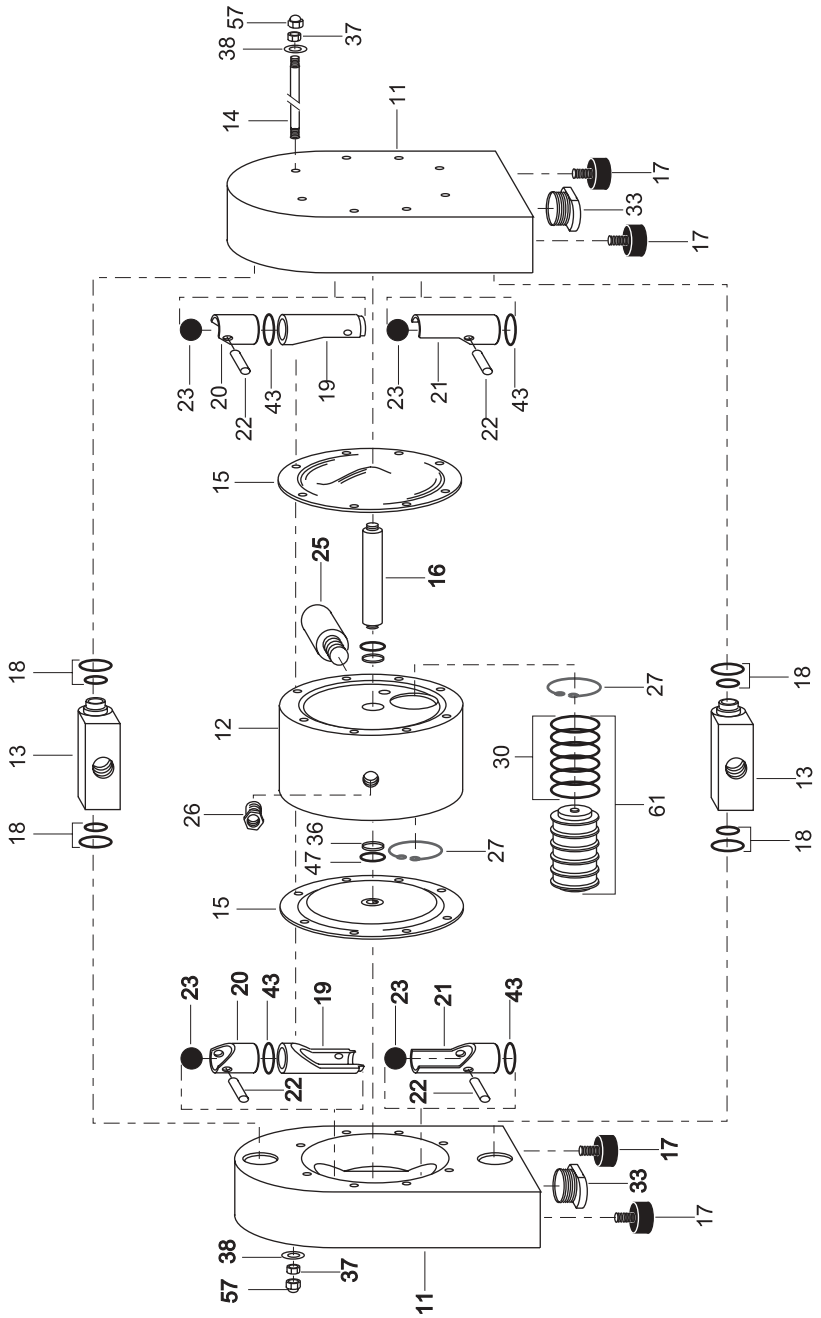
4.2 Spare parts T50 and T100



Pos	Description	Qty	Pos	Description	Qty
11	Housing	2	26	Air intake adapter	1
12	Center block	1	27	Circlip	2
13	In/Outlet	2	30	O-ring	6
14	Pin screw	6	33	Plug	2
15	Diaphragm	2	36	Center block sealing	2
16	Diaphragm shaft	1	37	Nut	12
17	Rubber foot	4	38	Washer	12
18	O-ring set (in/outlet)	4	43	O-ring (valve seat)	4
19	Spacer sleeve	2	47	O-ring (back up for 36)	2*/4**
20	Upper valve seat	2	57	Nut cover	12
21	Lower valve seat	2	61	Air valve complete	1
22	Valve ball stop	4	63	Drum inlet	1
23	Valve ball	4	64	Pump tube	1
25	Muffler	1	65	Handle	1

* = on T50, ** = on T100

4.3 Spare parts T200 and T400



Pos	Description	Qty	Pos	Description	Qty
11	Housing	2	25	Muffler	1
12	Center block	1	26	Air intake adapter	1
13	In/Outlet	2	27	Circlip	2
14	Pin screw	8	30	O-ring	6
15	Diaphragm	2	33	Plug	2
16	Diaphragm shaft	1	36	Center block sealing	2
17	Rubber foot	4	37	Nut	16
18	O-ring set (in/outlet)	4	38	Washer	16
19	Spacer sleeve	2	43	O-ring (valve seat)	4
20	Upper valve seat	2	47	O-ring (back up for 36)	2
21	Lower valve seat	2	57	Nut cover	16
22	Valve ball stop	4	61	Air valve complete	1
23	Valve ball	4			

4.4 Stocking recommendation

Even at normal operation some details in the pump will be subject to wear. In order to avoid expensive breakdowns we recommend having a few spare parts in stock.

Depending on the severity of the operation and the importance of not having a breakdown we offer two different spare part sets.

Set No 1

Qty	Description	Pos
2	Diaphragm	15
4*	Valve ball	23
2+2**	Rod valve	20, 21
1	Muffler	25
4	O-ringset	18

**** = Only T50 up to T400***
***** = Only TR9 and TR20***
****** = Only T100***

Set No 2

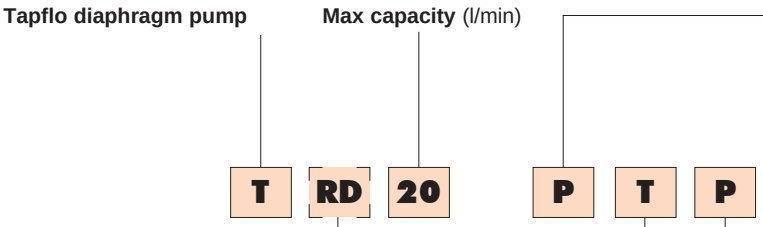
Qty	Description	Pos
1	Spare part set No 1	-
1*	Diaphragm shaft	16
2*	Upper valve seat	20
2*	Lower valve seat	21
2	Spacer sleeve	19
2**/4*	Pin	22
2	Circlip	27
2*	Center block seal	36
4*	O-ring valve seat	43
2*/4***	O-ring	47
1	Air valve complete	61

4.5 How to order parts

When ordering spare parts for Tapflo Pumps, please let us know the ***model number*** from the nameplate of the pump. Then just indicate the part numbers (refered to the spare part list) and quantity of each item.

4.6 Pump code

The model number on the pump tells the pump size and material of the pump components.



Material of wetted thermoplastic parts:
P = PE (polyethylene)
T = PTFE

Special execution:
A = Aluminium centerblock
B = Backup diaphragm system
D = Drum pump
E = Valve seat insert (PU, PTFE or AISI 316)
F = Filterpress pump
G = Cast iron centerblock
H = Pump with housing reinforcement plates
K = Short shaft version
L = Draining system
M = Optional connection type
N = FEP o-rings (pos 18)
Q = Special sealed pump
R = Rod valves
S = AISI 316/FKM air valve
T = Twin pump
V = AISI 316L valve seat / spacer
X = ATEX approved, group II, cat 2
Z = Semiconductor industry pump

Material of diaphragms:
E = EPDM
N = NBR (nitrile rubber)
T = PTFE
V = FKM (TR9 only)

Material of valve balls:
E = EPDM
N = NBR (nitrile rubber)
T = PTFE
S = AISI 316 stainless steel
P = PU (polyurethane)
K = Ceramic

Material of rod valves (TR9 and TR20 only)
P = PE (polyethylene)
T = PTFE

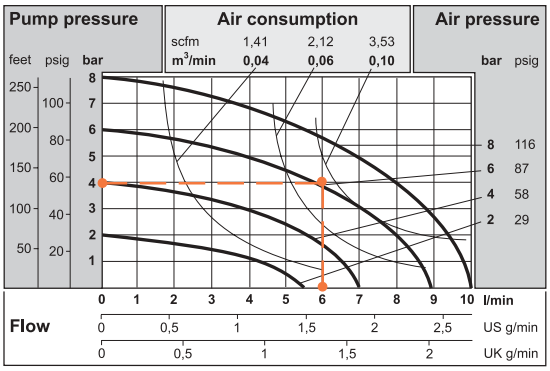
5. DATA

5.1 Capacity curves

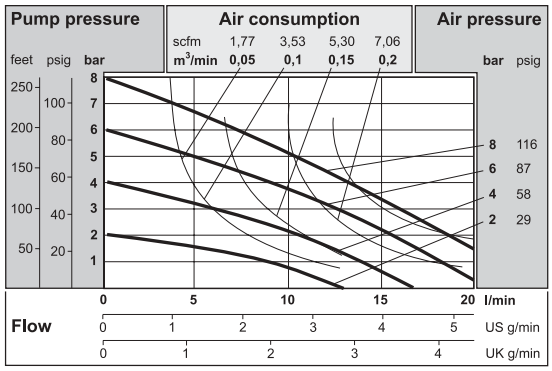
The performance curves are based on water at 20°C.Other circumstances might change the performance.See below how the capacity will change at different viscosities and suction lifts.

Example (see the orange coloured line):
A flow of 6 liter/minute is desired. The discharge pressure is calculated to 4 bar. We choose a TR9.
It requires an air pressure of 6 bar and will consume approximately 0.085 m^3 air per minute.

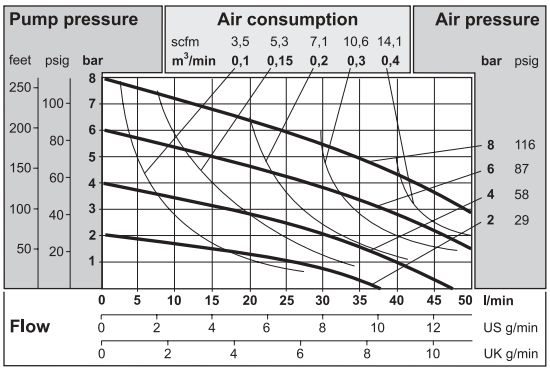
TR9



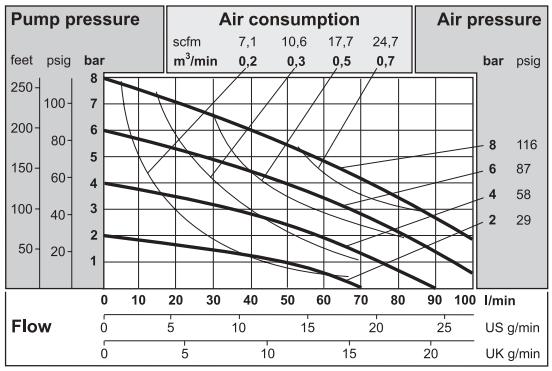
TR20



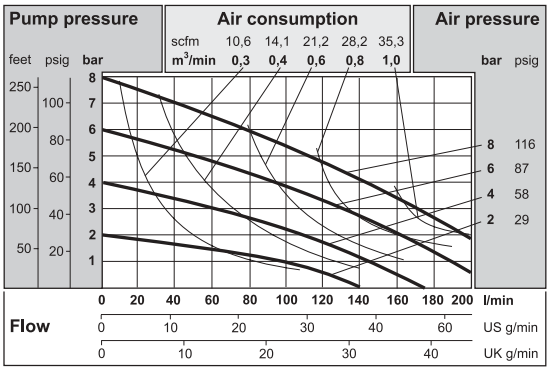
T50


Pump pressure
Air consumption
Air pressure
scfm 3,5 5,3 7,1 10,6 14,1
m³/min 0,1 0,15 0,2 0,3 0,4
feet psig bar
bar psig
8 116
6 87
4 58
2 29
0 5 10 15 20 25 30 35 40 45 50 l/min
Flow
0 2 4 6 8 10 12 US g/min
0 2 4 6 8 10 UK g/min

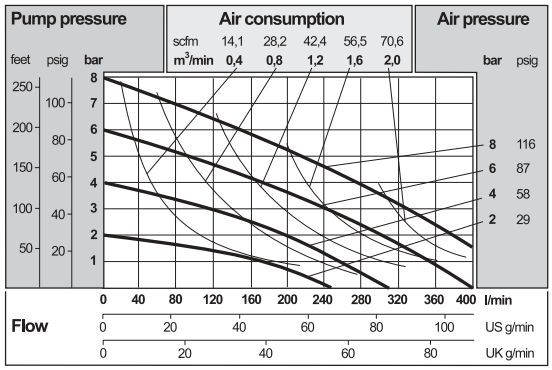
T100



T200

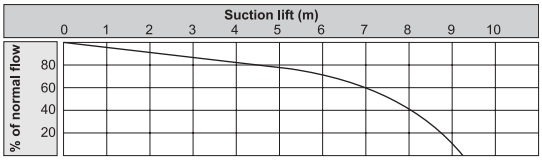


T400

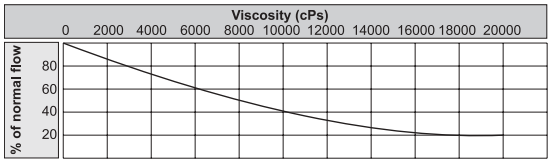


5.2 Capacity changes

Capacity changes at different suction lifts



Capacity changes at different viscosities



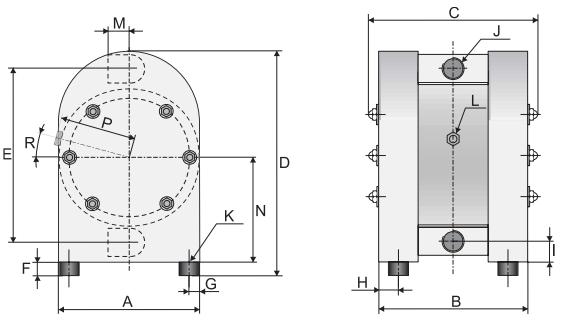
5.3 Dimensions

Dimensions in mm (where other is not indicated)
Dimensions in inch (where other is not indicated)

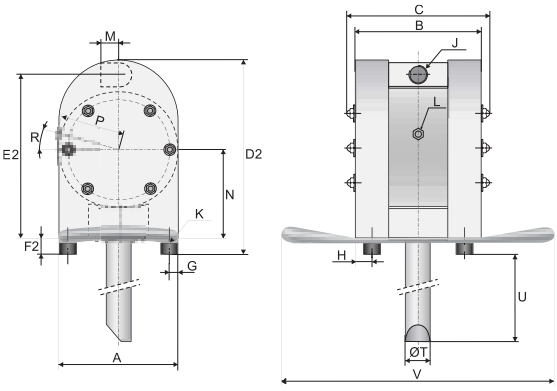
Dim	Pump size					
	9	20	50	100	200	400
A	70	105	150	200	270	350
	2.76	4.13	5.91	7.87	10.63	13.78
A2	-	-	150	300	300	404
	-	-	5.91	11.81	11.81	15.91
B	94	112	160	214	310	380
	3.70	4.41	6.30	8.43	12.20	14.96
B2	-	-	168	221	320	390
	-	-	6.61	8.70	12.60	15.35
B3	-	-	277	391	490	598
	-	-	10.91	15.39	19.29	23.54
C	115	135	190	250	345	425
	4.53	5.31	7.48	9.84	13.58	16.73
D	123	168	243	320	450	563
	4.84	6.61	9.57	12.60	17.72	22.17
D2	-	175	250	325	-	-
	-	6.89	9.84	12.80	-	-
D3	-	-	385	550	700	770
	-	-	15.16	21.65	27.56	30.31
D4	-	-	343	477	630	690
	-	-	13.50	18.78	24.80	27.17
E	92	132	190	252	345	440
	3.62	5.20	7.48	9.92	13.58	17.32
E2	-	147	210	280	-	-
	-	5.79	8.27	11.02	-	-
E3	-	-	250	333	467	588
	-	-	9.84	13.11	18.39	23.15
F	8	8	15	15	30	30
	0.31	0.31	0.59	0.59	1.18	1.18
F2	-	15	21	21	-	-
	-	0.59	0.83	0.83	-	-
G	9	15	17	30	30	30
	0.35	0.59	0.67	1.18	1.18	1.18
H	10	15	16	30	30	30
	0.39	0.59	0.63	1.18	1.18	1.18
H2	-	-	19	33	35	35
	-	-	0.75	1.30	1.38	1.38
I	12	15	20	28	38	48
	0.47	0.59	0.79	1.10	1.50	1.89
J	1/4″	3/8″	1/2″	1″	1 1/2″	2″
	1/4	3/8	1/2	1	1 1/2	2
J2	1/4″	3/8″	1/2″	3/4″	1″	1 1/2″
	1/4	3/8	1/2	3/4	1	1 1/2
K	M4x20	M4x20	M8x25	M8x25	M8x25	M8x25
	M4	M4	M8	M8	M8	M8
L	1/8″	1/8″	1/4″	1/4″	1/2″	1/2″
	1/8	1/8	1/4	1/4	1/2	1/2
M	15	17	25	38	54	70
	0.59	0.67	0.98	1.50	2.13	2.76
N	58	81	115	154	211	268
	2.28	3.19	4.53	6.06	8.31	10.55
P	35	52	80	105	143	183
	1.38	2.05	3.15	4.13	5.63	7.20
R	0°	0°	15°	15°	0°	0°
	0°	0°	15°	15°	0°	0°
S	13	15	21	27	35	42
	0.51	0.59	0.83	1.06	1.38	1.65
ØT	-	20	33	33	-	-
	-	0.79	1.30	1.30	-	-
U	-	1270*	1270*	1270*	-	-
	-	50.0*	50.0*	50.0*	-	-
V	-	285	360	400	-	-
	-	11.22	14.17	15.75	-	-

* = Any length up to 2000 mm upon request
* = Any length up to 79″ upon request

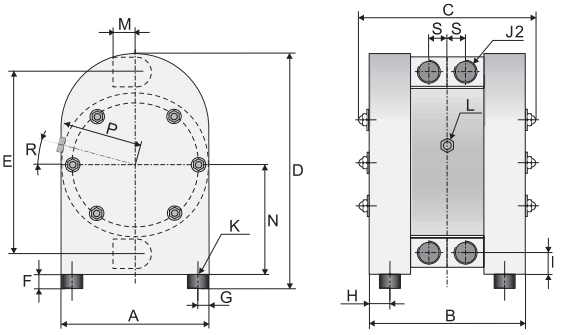
Standard pumps T



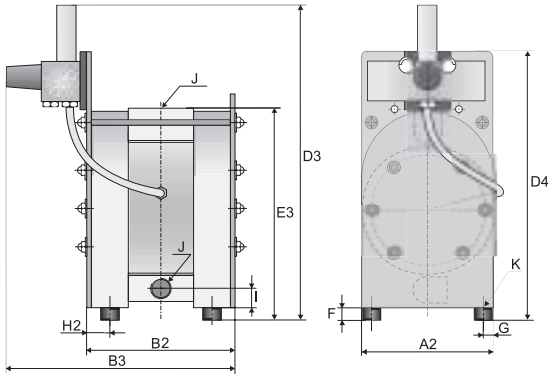
Drum pumps TD



Twin pumps TT



Filterpress pumps TF



5.4 Technical data

Data	Pump size					
	9	20	50	100	200	400
General characteristics						
*Max capacity (l/min) / (US gpm)	9 / 2.4	20 / 5.3	50 / 13.2	100 / 26	200 / 53	400 / 106
**Volume per stroke (ml) / (cu in)	7 / 0.43	25 / 1.53	120 / 7.32	280 / 17.1	1100 / 67.1	3200 / 195.3
Max discharge pressure (bar) / (psi)	8 / 116	8 / 116	8 / 116	8 / 116	8 / 116	8 / 116
Max air pressure (bar) / (psi)	8 / 116	8 / 116	8 / 116	8 / 116	8 / 116	8 / 116
Max suction lift dry (m) / (Ft)	1 / 3	1.5 / 5	3 / 9	4 / 13	5 / 16	5 / 16
Max suction lift wet (m) / (Ft)	8 / 26	8 / 26	8 / 26	8 / 26	8 / 26	8 / 26
Max size of solids (ø in mm) / (in)	2 / 0.08	3 / 0.12	4 / 0.16	6 / 0.24	10 / 0.39	15 / 0.59
Max temp, pump in PE (°C) / (°F)	70 / 158	70 / 158	70 / 158	70 / 158	70 / 158	70 / 158
Max temp, pump in PTFE (°C) / (°F)	100 / 212	100 / 212	100 / 212	100 / 212	100 / 212	100 / 212
Min temperature (°C) / (°F)	-20 / -4	-20 / -4	-20 / -4	-20 / -4	-20 / -4	-20 / -4
Weight						
Standard pump T in PE (kg) / (lb)	1 / 2.2	1,5 / 3.3	5 / 11	10 / 22	24 / 53	44 / 97
Standard pump T in PTFE (kg) / (lb)	1.5 / 3.3	2.5 / 5.5	7 / 15	17 / 38	44 / 97	90 / 199
Drum pump TD in PE (kg) / (lb)	-	2 / 4.4	6 / 13	11 / 24	-	-
Drum pump TD in PTFE (kg) / (lb)	-	3.5 / 7	9 / 19	-	-	-
Filterpress pump TF in PE (kg) / (lb)	-	-	8 / 17	18 / 40	37 / 82	66 / 146
Material of components						
Pump housing and all wetted thermoplastic details	PE or PTFE					
Centre block (not wetted)	PP					
Diaphragms	PTFE	PTFE, EPDM or NBR				
Valve balls	-	-	PTFE, EPDM, NBR, AISI 316, PU, Ceramic			
Rod valves (TR9 and TR20)	PE or PTFE		-	-	-	-
Air valve	Brass / NBR or optional AISI 316L / FKM					
O-rings (wetted)	EPDM, PTFE or FKM					
Housing pin screws	Stainless steel AISI 304					
Diaphragm shaft	Stainless steel AISI 304					
Drum handle (TD pumps)	-	Stainless steel AISI 316L			-	-
Reinforcement plates (TF pumps)	-	-	Stainless steel AISI 316L			

* = Recommended flow is half of the the max flow, i.e. recommended flow for a T100 is 50 l/min (13.2 US gpm).
** = The value is based on pumps with EPDM diaphragms. Pumps with PTFE diaphragms have about 15% less volume.

5.5 Tightening torques

The following tightening torques are recommended.

Pump size	Mounting torque (Nm)
TR20	5,5
T50	8
T100	16
T200	20
T400	23

6. WARRANTY & REPAIR

6.1 Returning parts

When returning parts to Tapflo AB please follow this procedure:

- Consult Tapflo AB for shipping instructions.
- Cleanse or neutralize and rinse the part/pump. Make sure the part/pump is completely empty from liquid.
- Pack the return articles carefully to prevent any damage under transport.

Goods will not be accepted unless the above procedure has been complied with.

6.2 Warranty

Tapflo AB warrants products* of it's own manufacture will be free from defects in raw material and manufacture under normal use and service for a period of not more than one year. Tapflo's obligation under this warranty being limited to repair or replacement of its products which shall be returned to Tapflo AB. Follow the procedures above "returning parts". If a pump or part is received defected, report to Tapflo AB immediately. Parts returned to our company must have written authorisation from Tapflo AB. This warranty will not apply to any of our products which shall have been used other than for their intended use.

**** Even when products such as diaphragm pumps operate under normal conditions, some parts are subject to wear and may have to be replaced within one year. Examples of such parts in Tapflo diaphragm pumps are; diaphragms, valve balls, o-rings and gaskets etc. This warranty will not apply to these parts being subject to wear.***

6.3 Warranty form

Company: _____

Telephone: _____ Fax: _____

Address: _____

Country: _____ Contact name: _____

E-mail: _____

Delivery date: _____ Pump was installed (date): _____

Pump type: _____ Serial No (stamped on the pump housing): _____

Description of the fault: _____

_____

_____

The installation

Liquid: _____

Temperature (°C): _____ Viscosity (cPs): _____ Spec. grav. (kg/m³): _____ pH-value: _____

Contents of particles: _____ %, of max size (mm): _____

Flow (l/min): _____ Duty (h/day): _____ No of starts per day: _____

Discharge head (mwc): _____ Suction head/lift (m): _____

Air pressure (bar): _____ Quality of the air (filter, micron?, lubrication?): _____

Other: _____

_____

_____

Place for sketch of the installation

NOTES

NOTES

Tapflo AB · Filaregatan 4 · S-442 34 Kungälv · Sweden
Tel (46) 303 63390 · Fax (46) 303 19916 · E-mail: sales@tapflo.com · www.tapflo.com

DISTRIBUTOR:

All data in this instruction manual are based on the latest product information available at the time of publication. Changes reserved without notice.